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HAMRE, SCHUMANN, MUELLER & LARSON P.C.
P.O. BOX 2902-0902
MINNEAPOLIS, MN 55402

EXAMINER	
YOHA, CONNIE C	
ART UNIT	PAPER NUMBER
2827	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/551,500	MURAKAMI ET AL.	
	Examiner	Art Unit	
	CONNIE C. YOHA	2827	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-16, 19-26, 28-30, 32-37* is/are rejected.

7)☐ Claim(s) *17,18,27 and 31* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 September 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/6/07, 6/8/07, 9/30/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office acknowledges receipt of the following items from the Applicant:

Papers submitted under 35 U.S.C. 119(a)-(d) have been placed of record in the file.

Information Disclosure Statement (IDS) filed on 8/6/07, 6/8/07, and 9/30/05 were considered.

2. Claims 1-37 are presented for examination.

Claim Objections

3. Claim 13 is objected because it contains insufficient antecedent basis for the claim limitation. The claim recites the limitation “wherein the coercive force of the magnetic device".

Claim Rejections - 35 USC э 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1-10, 14-16, 19-26, 28-30, and 32-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Stephenson et al, Pat. No 7110312.

With regard to claim 1, Stephenson discloses a memory cell comprising: a memory medium (fig. 1, 26) for holding information (col. 6, line 16-21), a controlling part for recording information in the memory medium (col. 6, line 26-29), and a detecting element (fig. 1, 24) for reading information from the memory medium (col. 1, line 20-22), wherein the detecting element is provided independently of the memory medium (col. 4, line 12-26).

With regard to claim 2, Stephenson discloses wherein the memory medium is a magnetic device (col. 1, line 32-37); the controlling part comprises a first magnetic field generating part for applying a magnetic field to the magnetic device so as to change a magnetization state of the magnetic device (col. 6, line 16-29) (also with regard to claim 14-16); and the detecting element is arranged in the vicinity of the magnetic device (col. 3, line 64-67) (col. 4, line 12-13) and comprises a magnetoelectric converting part whose electric characteristics vary in accordance with the magnetization state of the magnetic device (col. 7, line 6-35).

With regard to claim 3, Stephenson discloses wherein the magnetoelectric converting part comprises a magnetoelectric converting element whose electric characteristics vary in accordance with a state of a magnetic field to be detected (col. 7, line 6-35); and the magnetoelectric converting element is arranged in the vicinity of the magnetic device so as to detect a magnetic flux generated from the magnetic device (col. 3, line 64-67) (col. 6, line 30-col. 7, line 35).

With regard to claim 4, Stephenson discloses wherein the magnetoelectric converting element is an element whose electric resistance varies in accordance with the state of the magnetic field to be detected (col. 7, line 6-35).

With regard to claim 5, Stephenson discloses wherein the magnetoelectric converting element is a semiconductor element (Col. 1, line 32-37).

With regard to claim 6, Stephenson discloses wherein the semiconductor element is a transistor (col. 8, line 16-22).

With regard to claim 7, Stephenson discloses wherein a magnetization direction of the magnetic device has an angle with respect to a face of the magnetic device facing the magnetoelectric converting part (col. 7, line 63-col. 8, line 1) (col. 10, line 27-47) (also with regard to claim 8).

With regard to claim 9, Stephenson discloses wherein the magnetic device comprises at least one magnetic material selected from the group consisting of a ferrimagnetic material, a magnetic material based on rare earth-transition metal, ferrite (col. 3, line 64-col. 4, line 2 (according to Wikipedia definition, ferrites material composed of iron oxides and other elements such as aluminum, cobalt, nickel, manganese and zinc), and a ferromagnetic material composed of an oxide containing a transition metal (col. 8, line 16-22).

With regard to claim 10, Stephenson discloses wherein the magnetic device is composed of a magnetic material of a multicomponent system containing a plurality of components different from each other in the coercive force (col. 7, lien 46-57).

With regard to claim 19, Stephenson discloses a plurality of the magnetic devices (col. 1, line 9-10).

With regard to claim 20, Stephenson discloses wherein the magnetoelectric converting part comprises a magnetoelectric converting element that varies its electric characteristics in accordance with the state of the magnetic field to be detected (col. 7, line 6-35), and the magnetoelectric converting element is arranged in the vicinity of the 30 magnetic devices so as to detect magnetic fluxes generated from the magnetic devices (col. 3, line 64-67) (col. 6, line 0-col. 7, line 35).

With regard to claim 21, Stephenson discloses wherein the magnetoelectric converting element comprises a transistor, and the plural magnetic devices are arranged corresponding to one channel of the transistor (col. 8, line 16-22) (also with regard to claim 22-25).

With regard to claim 26, Stephenson discloses wherein the magnetoelectric converting element comprises a plurality of transistors (col. 8, line 16-22).

With regard to claim 28, 29, 35, 36, Stephenson discloses an information-recording conductive line (fig. 1, write line 28) for recording information in the memory cell, and an information-reading conductive line (fig. 1, sensing line 32) for reading the information.

With regard to claim 30, Stephenson discloses a plurality of the memory cells, the memory cells being arranged in an inherent matrix.

With regard to claim 32, Stephenson discloses the method comprising:
(i) forming, on a surface of a semiconductor, a magnetoelectric converting element that

has electric characteristics varying in accordance with a state of a magnetic field to be detected (col. 3, line 48-63), (ii) forming a magnetic device so that the magnetoelectric converting element is interposed between the magnetic device and the semiconductor substrate (col. 4, line 12-26), and (iii) forming, in the vicinity of the magnetic device, a magnetic field generating part for changing the magnetization state of the magnetic device (col. 3, line 64-66); in the step (ii), the magnetic device is formed in the vicinity of the magnetoelectric converting element so that the magnetoelectric converting element detects a magnetic flux generated from the magnetic device (col. 6, line 30-col. 7, line 35).

With regard to claim 33, Stephenson discloses wherein the magnetoelectric converting element is a transistor (col. 8, line 16-22).

With regard to claim 34, Stephenson discloses, wherein a plurality of the magnetic devices formed in the step (ii) (col. 1, line 9-10).

With regard to claim 34, Stephenson discloses, the method comprising: changing a current applied to the information-recording conductive line so as to change the magnetic field generated at a first magnetic field generating part, thereby changing a magnetization state of the magnetic device by the changed magnetic field so as to record information in the memory, and changing a current applied to the information-reading conductive line, thereby detecting electric characteristics of the magnetoelectric converting part so as to read information recorded in the memory (col. 6, line 7-col. 7, line 35).

Claim Rejections - 35 USC э 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stephenson et al, Pat. No 7110312 in view of Mizoguchi et al, Pat. No. 6903645.

With regard to claim 11, Stephenson, as applied in prior rejection, discloses all claimed subject matter except wherein a temperature at which the saturation magnetization value of a magnetic device is maximized is in a range of 80°C to 300°C. However, Mizoguchi discloses a temperature at which the saturation magnetization value of a magnetic device is maximized is in a range of 80°C to 300°C (col. 15, line 11-20 (especially for examples 44-47) and table 9). Therefore, it would have been obvious for one having an ordinary skill in the art at the time the invention was made to incorporate use of the temperature range 80°C to 300°C to obtain the maximum saturation magnetization value as taught by Mizoguchi's into Stephenson's magnetic device to make sure a maximum saturation magnetization value is obtained in a magnetic device, thus creating a more optimize sensing operation of the magnetic field of the magnetic memory device.

Claim Rejections - 35 USC э 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stephenson et al, Pat. No 7110312 in view of Ise et al, Pat. No. 5094925.

With regard to claim 12, Stephenson, as applied in prior rejection, discloses all claimed subject matter except wherein the magnetic device has Curie temperature of not lower than 100°C. However, Ise discloses magnetic recording medium having a Curie temperature of not lower than 100°C (col. 4, line 27-49). Therefore, it would have been obvious for one having an ordinary skill in the art at the time the invention was made to incorporate the use of Curie temperature of not lower than 100°C in a magnetic device as taught by Ise's into Stephenson's magnetic device to improve the recording sensitivity of a magnetic recording device.

Claim Rejections - 35 USC э 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stephenson et al, Pat. No 7110312 in view of Oshiki et al, Pat. No. 6392832.

With regard to claim 13, Stephenson, as applied in prior rejection, discloses all claimed subject matter except wherein the coercive force of the magnetic device has a tendency to decrease with a temperature rise within a predetermined temperature range. However, Oshiki discloses in a magnetic device, the coercive force of the magnetic medium has a tendency to decrease with a temperature rise within a predetermined temperature range (fig. 6). Therefore, it would have been obvious and well known for one having an ordinary skill in the art at the time the invention was made to recognize that in a magnetic device, a change in coercive force is relative to the change in temperature of the device as taught by Oshiki because the temperature to which the recording medium is heated is determined by the relationship between a change in magnetization of a magnetic film, which used to realize the magnetic recording layer, relative to temperature and a magnetic field required for recording and applied by the magnetic device (Oshiki, col. 5, line 15-42).

Allowable Subject Matter

8. Claim 17-18, 27, 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record does not show the limitation of a stem composed ofa soft magnetic device, the stem being arranged opposite to a side of the magnetoelectric converting part facing the magnetic device.

The prior art of record does not show the limitation of a shield composed of a soft magnetic device, the shield being arranged so that the magnetic device is interposed between the shield and the magnetoelectric converting part.

The prior art of record does not show the limitation of wherein a drain electrode of one of an adjacent pair of transistors and a source electrode of the other transistor are equipotential.

The prior art of record does not show the limitation of wherein at least one electrode selected from the group consisting of the source electrodes and the drain electrodes in the transistors of the memory cells different from each other are equipotential.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. Braun (7088612), Kumar et al (7239570) and Braun et al (7200032) disclose a memory device.

10. When responding to the office action, Applicants' are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

11. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned (see MPEP 710.02 (b)).

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to whose telephone number is (571) 272-1799. The examiner can normally be reached on Mon. - Fri. from 8:00 A.M. to 5:30 PM. The examiner's supervisor, Amir Zarabian, can be reached at (571) 272-1852. The fax phone number for this Group is (571) 273-8300.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov Should you have questions on access to the Private Pair system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Connie C. Yoha/

Primary Examiner, Art Unit 2827